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Contract Farming as an Institution for Integrating Rural Smallholders in Markets for Livestock Products in Developing Countries: (II) Results in Case Countries

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Summary

This report provides an assessment of the efficiency and effectiveness of contract farming as an institution for integrating rural smallholders in markets for livestock products, using detailed reviews of particular case studies on contract farming in India, Thailand, the Philippines and Viet Nam, and in which the principal author participated.

Two forms of contracts engaged in by producers and market intermediaries existed: formal and informal contracts. In general, formal contracts were written contracts between an integrator company and a farmer, where the rights and obligations of each party were strictly defined. Informal contracts were unwritten but nevertheless binding agreements between a farmer and his market intermediary, which could either be a trader for inputs or outputs, or with a cooperative which he is a member of, on the provision of inputs or the marketing of output, or both.

In most cases, compared to farmers operating independently, contracts were relatively efficient in introducing new production techniques, linking producers to the markets for lower input prices or/and higher product prices, leading to higher net incomes per unit of output. But in some cases, the reverse was true. On the effectiveness of contracts in integrating smallholders into mainstream markets for higher value products, the evidence suggests that formal contracts in particular, were biased in favour of larger-scale farms, excluding smallholders. In contrast, informal contracts with cooperatives and traders were more flexible in accommodating farmers of varying scales of operation, including smallholders. More systematic investigation, however, needs to be done on the dynamics of informal contracts and how to better harness their potential to become more efficient and effective in their market linkage function.

1. Introduction

The commercialization and globalization of agriculture has brought about opportunities for improved incomes for rural households in developing countries through new possibilities to supply higher-value products such as meat and milk products in markets of the growing urban centres in the developing countries themselves. Accompanying this phenomenon is the increasing demand for particular product characteristics, such as quality, food safety, as well as concern over production processes, for which product and process standards and certification mechanisms are increasingly coming into play. To gain access to these high(er)-end markets, rural smallholder livestock keepers need to gain the capacity to produce at such standards, as well as the necessary market institutions to guarantee the acceptability of their products. The inability to do so due to market failures or/and failures in the provision of public goods, 'mis'-configuration of supply chains and the accompanying developments in product and process standards, impose barriers on rural smallholders, and constrain their access to the very markets in which the demand for meat and milk products are rapidly expanding. Within this context, contract farming has, in recent years, been presented as a potentially effective market-oriented institution to bridge the gap between the rural smallholder producer's resources, assets, and capacities on the one hand, and the increasingly stringent demands of the consumers on the other.

In partnership with the University of the Philippines Los Baños, PPLPI initiated a research project entitled, *'Contract Farming and Other Market Institutions as Mechanisms for Integrating Smallholder Livestock Producers in the Growth and Development of the Livestock Sector in Developing Countries'* to assess the efficiency and effectiveness of contract farming and other market institutions in assisting rural smallholder livestock keepers to gain access to markets for livestock products in developing countries.

This brief report summarizes the main results of the analysis of the extent to which contract farming schemes have improved access to markets for rural smallholder livestock producers in identified case countries in Asia, using the framework developed in the earlier companion report.

2. Contract Farming in Case Countries

In the case studies on contract farming in livestock in the selected developing countries of India, Thailand, Viet Nam, and the Philippines, the products investigated were milk, poultry, and pigs. Contracts were either formal or informal. Formal contracts, in terms of their specific provisions, were of two types: (i) fixed-fee or wage contracts, and (ii) forward-price or profit-sharing contracts. Within the framework of contract types according to service provision, most fixed-fee or wage contracts had the properties of a 'resource-providing' contract, with some features of a 'management-providing' contract, with intensive supervision of the production processes at the farm by the integrator company. Forward-price and profit-sharing contracts have closer relations to a 'market-specification' contract, but with certain features of a 'management-providing' contract from the receipt of the farmer of livestock services from the integrator.

In industrial-type broiler production, in all relevant countries, formal contracts between integrators and farmers dominate over informal contracts. Formal contracts involved mostly large-sized farms (>10,000 birds per cycle/farm). Strict rules govern volume of inputs provided by the integrator and volume of output turned out by the farmer, with provisions also on some quality specifications on individual bird output. Integrators exercised proprietary rights over the technology, inputs, and output.

In milk production, both formal and informal contracts exist. In Thailand and Viet Nam, where the dominant final product is ultra-high temperature (UHT) processed milk for urban consumers, processors engage in strictly defined formal contracts with farmers, with scale of production depending on the predominant scale of operation of producers in the area of coverage. In India, outside the realm of contracts within cooperatives, the emerging contracts involve processing companies who engage in a formal contract with an intermediary (collector) in the supply of fresh milk, while the intermediary engages in informal contracts with farmers, mostly smallholders.

In pig production in Thailand, Viet Nam, and the Philippines, contracts exist for industrial-type hogs. Formal contract growing, however, is not yet the norm in all three countries. Unlike in broiler chicken where the sources of day-old-chicks and formula mixed feeds are controlled by the few large broiler integrators, there are alternative sources of commercial breeding and fattening stock in pig raising, and there are alternative sources of feeds or feed ingredients. In all countries, formal contracts involved larger-scale farms (>100 pigs per cycle per farm). In the Philippines, in contrast with the other countries, formal contracts were found between smallholder pig producers (20 to 80 pigs per cycle per farm) and a medium-sized feed-milling - livestock trading - meat processing cooperative. While the contracts were written, these do not typify the usual big company – large farm contract between two impersonal parties. Rather, social relations are relatively informal, and the trust level between the smallholder pig producers and the cooperative is relatively strong, cultivated after years of repeated successful transactions, with the cooperative located in the same peri-urban area as the surrounding villages where the farmers are. Moreover, the smallholders are themselves members of the same cooperative, and thus have a stake in the institution itself.

In Viet Nam, there were informal contracts between farmers and cooperatives, and input and/or output traders, in the production of industrial-type pigs. For indigenous pigs, informal contracts were found to exist between pig producers and output traders. While members of pig raising cooperatives mostly involve medium- to large-scale producers, those engaged in informal contracts with traders tended to be mainly smallholders.

Thus, there are similarities as well as differences in the nature of the contracts in the case countries. These varied depending on the length of history and level of development and maturity of formal contract relations in the countries and on the strength of the legal and institutional framework to enforce contracts. They also varied according to the nature of the product in terms of the appropriation of the benefits to the employed technology by the integrator, the target markets for the output, as well as the dominant scale of production of the commodity in each country or location within a country.

The existence and persistence of informal contracts between traders and farmers are based mainly on social capital and trust, where repeated satisfactory transactions reduce uncertainty and build reputation, thereby also effectively reducing transaction costs.

3. Nature of Contracts and Sharing of Risks

In the case countries of India, Thailand, Viet Nam, and the Philippines, the nature of livestock production contracts engaged in by the integrator and the farmer differs according to the product under transaction. Yet even for the same product, there are variations in contracts across countries that tend to be driven by the changing needs of the markets on certain product attributes, types of transaction costs that need to be hurdled, and the distribution of power between integrator and farmer.

In formal contracts, the terms are adaptations of contract growing agreements in industrialized countries, and modified according to the institutional environment of developing countries concerned. Contracts are mainly in the form of fixed-fee or wage contracts. Under fixed-fee contracts, the integrator provides all intermediate inputs required to produce the output. The standard input-output ratios and quality attributes are stipulated. The farmer is then paid an agreed fee in exchange for his labour, management, and use of facilities. The integrator assumes the market risks of changes in input and output prices. On the other hand, production risks impact on both parties.

There were a few forward-price or profit-sharing contracts. Under these arrangements, the integrator still provides the intermediate inputs but on credit at agreed prices. The cost of these inputs is then charged to the farmer when the output is sold. A minimum forward-price of output could be guaranteed to the producer. Under profit-sharing contracts, the prevailing market price for the output at the time of sale is used. The profit is split between the two parties, with both assuming the market risks. Production risks are shared, so there is incentive for both parties to aim for maximum activity profit.

Formal contracts in broiler production are mainly of the fixed-fee type in India and the Philippines, but have shifted to guaranteed forward-price contracts in Thailand. In pig production in Thailand, Viet Nam, and the Philippines, contracts with large-scale producers (>100 hogs per cycle per farm) are dominantly fixed-fee contracts. Formal contracts between smallholder pig producers and a cooperative in the Philippines are profit-sharing contracts.

In informal contracts found in the production and marketing of milk in India and pigs in Viet Nam, the terms of agreement are more difficult to neatly categorize. They are, however, closer to variations of profit-sharing contracts rather than fixed-fee contracts. In the dairy case in India, the contract offers the guarantee of supply of intermediate inputs, livestock services, and market outlet for the smallholder producers, in exchange for the guarantee of supply of milk to the processor, through its intermediary. In the case of pig production in Viet Nam, the agreement lies more in the guarantee of supply of intermediate inputs to the farmer. Some agreements guarantee the marketing of the output, but most leave the producers on their own.

In general, for formal contracts, when integrators are dealing with larger-scale farmers, fixed-fee contracts are offered, and integrators exert quite a heavy market power, shifting as much production risk to the producer. When producers have sufficient capacity to manage and control their production performance, guaranteed forward-price contracts emerge.

Informal contracts are mainly undertaken by smallholders with market intermediaries in the interest of getting assured supply of intermediate inputs and livestock services on credit. Guaranteed outlet for the output could be an additional feature, but with the exception of milk in India, it is often a missing component.

4. Smallholder Participation in Contracts

Except in industrial-type broiler chicken production in Thailand and in the Philippines, formal contacts are not yet the norm in the production of livestock products in the case countries examined. Although independent smallholder livestock producers perceive benefits and advantages in participation in contract production, the reasons for not being engaged in one pointed to perceptions on the non-existence of such offers in their own localities. If these offers existed, certain household and farm characteristics did not make them qualify to be chosen, among which is the small-scale of activity.

Econometric estimation of the determinants of participation in formal contract farming in the case countries examined did not yield uniform directions of impact of significant factors influencing participation or non-participation. In pig production in Viet Nam, the characteristics of low education, non-specialization in pig production, and small-scale of operation, appeared to act as barriers to participation. In India, after achieving a particular scale of production, gaining more experience in the activity, and having the support of non-farm income sources, producers tended to shift back to being independent producers, possibly indicating that the terms of the contract were stifling.

In informal contracts, there are also no common and uni-directional determinants of participation. In dairy production in India, greater experience in dairy production appeared to be a human capital asset valued by integrators. In pig production in Viet Nam, farmers who were more likely to engage in informal contracts with a cooperative were those with higher levels of education, greater experience in pig production and specializing in the activity, and those who were located farther away from the market centres.

In general, participation in contract farming reflects two sides of the coin: the overcoming of physical and human capital qualification barriers put up by the integrator, and the valuing by the farmer of the services provided by the contract arrangement as opposed to undertaking the production and marketing of the product independently. Even when options are there to engage in contracts, if the farmer deems he has what it takes to undertake the production and market risks on his own, and reap the entire fruits of the activity, he may prefer to operate as an independent producer.

5. Efficiency and Effectiveness of Contracts

Efficiency

The theoretical framework of transaction cost economics asserts that when transaction costs are significant, economic efficiency gains can be derived from vertical coordination rather than engaging in spot markets. These efficiency gains could be reflected in gains in physical productivity, reduction in costs per unit of output, and gains in net returns per unit of output. Reduction in uncertainty of quality of output could also lead to the capture of the corresponding price premia by producers or suppliers.

Comparison of net returns per unit of output between contract farmers and independent producers in milk, broiler chicken, and pigs in the case countries gave mixed results, although there were more instances where the advantage was on the side of the contract farmers. The cases where the reverse position occurred were in broiler contracts in India. This is consistent with the results in the determinants of participation where those with better human and physical assets, and with higher scale of operations, were independent producers. Those with lesser means could only enter the selected economic activity with the assistance of contracts, but at a price. In Viet Nam, the comparative performance varied by type of pig production activity, and on whether exotic or mixed breeds of pigs were used. In general, participation in contracts, whether formal or informal, induced greater adoption of exotic breeds of pigs. The net income advantage of contract farmers, however, was more consistent in the raising of mixed breeds rather than with exotic breeds.

Effectiveness

Within the context of the increasing global integration of agricultural markets, the development of supply chains in international trade, and the diffusion of supermarkets in developing countries, contract farming has often been looked upon as a system that could integrate smallholder producers in rapidly developing mainstream markets. The effectiveness of contract farming arrangements as an institution could be viewed from the perspective of their success in involving smallholders in such schemes. However, the investigation on effectiveness should not just stop at the mere inclusion of smallholders, but must also assess whether the engagement in such schemes was, on the whole, beneficial for such households rather than resulting in lower incomes, or even to impoverishment.

This review found that there was very scant literature that investigated the effectiveness of contract farming in livestock products along these lines. A limitation in the literature on the impact of contract farming is that, while most smallholder livestock production in developing countries takes place under mixed crop-livestock production systems, most of the studies focused solely on the performance of the livestock activity under contracts. In conditions where various farm activities compete for limited household labour and other resources, improvements in income from more intense livestock production under contract may lead to a reduction in household resources used in the other economic activities. This could then lead to a corresponding reduction in income in these other activities. Of the few studies available, one was on informal contracts in pig production in rural Viet Nam, where contracts improved pig production income but the same conclusion could not robustly be said about total household income. The conditions under which one or another outcome is achieved should be the subject of deeper investigation.

Another angle that could be pursued is to look at the longer term impacts of engagement in contracts on activity performance, i.e., the stability of incomes derived over time. The literature on contract farming in developing countries is not yet rich along these lines. There are few studies in industrialized country settings, in the US broiler industry in particular, with perceptions of an imbalance in the terms relating to the distribution of production risks as unfairly tilted against growers, where contracts were on an annual basis, with no certainty for renewal. In less developed countries, one can assert that the terms of formal contracts in broiler and industrial-type pig production are even more tilted in favour of the integrators. This is so because they could put to their advantage the asymmetry of information about the markets over producers, and exploit their stronger bargaining position over individual farmers, where the legal and institutional framework to enforce contracts is relatively weak. The perceptions by formal contract growers of the inequity of terms is confirmed in the case studies on broiler contracts in India and in Thailand, and fixed-fee contracts in industrial-type pig production in northern Viet Nam. In Thailand, the shift toward guaranteed forward-price contracts in broiler production appears to have stemmed from the dissatisfaction with the fixed-fee contracts. In all cases, however, contract growers indicated preference for continued engagement in formal contracts, albeit with more favourable terms.

Finally, a third angle in investigating the effectiveness of contract farming as a system that integrates smallholder livestock producers into the growing mainstream markets is determining whether or not contracts exhibit a scale bias. In the case countries compared, for formal contracts in broiler and industrial-type pig production, it was most often the case that there were minimum capital and scale requirements, the size of which varied depending on the level of development of the particular industry and on the predominant scale of production in each country. Among informal contracts, there was generally a greater flexibility by market intermediaries in accommodating smallholder producers, as evidenced in dairy contracts in India and in pig production in northern Viet Nam. In these cases, the ‘reputation’ on the ability of producers to keep the agreement carried greater weight than simply the scale of production of the farmer.

There are, however, a few cases of formal contracts in industrial-type pigs, such as the case in the Philippines, where integrators do engage in contract with smallholders. In these cases, it is the human capital and the quality of physical assets to successfully undertake the activity that matters, rather than the scale of production *per se.* In addition, the proximity between the integrator and the farmer, the social capital that connects the two parties to the contract, and the element of trust provide for enduring production-marketing relationships. These cases, however, are the exceptions rather than the norm.

In the assessment of the extent to which contract farming has improved access to markets for rural smallholders, the reviewed literature heavily followed focussed on how smallholders could gainfully participate in high-value chains that lead to supermarkets in urban centres or to export markets. Largely ignored was the issue of responding to the growing demand by consumers for local livestock products and product characteristics in domestic markets where the preferred sources of supply are not the supermarkets.

6. Conclusions and Way Forward

Contract farming more closely links consumers having particular demands on products and product characteristics with producers as a market-mediating institution that organizes the production of such outputs with farmers-on-contract and the processing and packaging of the same to identified distribution centres.

When the destination markets of the products are exports or high-end domestic supermarkets that require adherence to very rigorous standards, standard formal contracts are the rule. Such formal contracts tend to seek farmers with highly specialized assets and skills. Toward the objective of enhancing market access of smallholder producers in developing countries, policy should take extreme caution at interventions that are geared toward putting the rural smallholders onto the supermarket and formal contract farming bandwagons.

The larger domestic market for differentiated livestock products and product attributes outside the confines of exports and supermarkets is the major arena where the competitiveness of rural smallholder livestock producers should be harnessed to enhance their access to such markets. Smallholders are in a position of comparative advantage to build on what they are already engaged in and exploit that potential. Policies directed at strengthening their position have a greater chance of sustaining gains than policies that force them to fit into input-intensive industrial-type production systems for high-end products destined for supermarkets or exports, whose tight product and process standards are extremely difficult for rural smallholders to master.

In the domestic market, informal contracts do function as an institution that responds to demand for differentiated products and product characteristics as communicated by and specified in the contracts along the chain, although in varying levels of sophistication. Key to matching consumer demand for particular product characteristics and the supply of such by smallholders is the development of efficient organizations in production and distribution, and of recognized institutional mechanisms for assuring the identity, quality, and safety of such products.

Efficient organization requires predictability and accountability for the sustainability of recurrent transactions. Thus, even in informal supply contracts, binding agreements must govern transaction relations. The development of alternative institutions that provide a guarantee for the desired characteristics of products derived from rural smallholder livestock output should accommodate the wider range of differentiated meat and milk products demanded by broader classes of domestic consumers. This would open up the classification of livestock and meat products along a wider spectrum than a simple dichotomy between ‘certified’ products that have ‘passed’ some public or private standards versus ‘uncertified’ products that presumably have 'failed' to pass such standards. More systematic investigation into these issues in informal contract settings should be undertaken so as to exploit their potential in enhancing rural smallholder market access.

The issue of eventual formality of informal contracts, as domestic markets reconfigure, should be given more serious study as this has implications on the longer-term sustainability of informal organizations. In the meantime, alternative specifications of contracts should be explored to take into account the initial conditions and constraints of smallholders as starting point for the evolution and strengthening of relations that build on the reliability and trustworthiness of smallholders in delivering their own part in contracts.

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8. Disclaimer & Contacts

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